

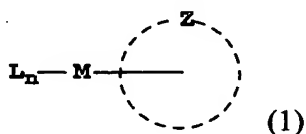
WHAT IS CLAIMED IS:

1. An electroluminescent device comprising a light-emitting layer containing a light emitting phosphorescent material that contains an organometallic complex comprising a metal selected from the group consisting of Mo, W, Re, Ru, and Os that is coordinated to a neutral or negatively-charged ligand group through the π electrons of the ligand with a hapticity greater than 2.
2. The device of claim 1 wherein the ligand group comprises an aromatic system and donates 6 π electrons.
3. The device of claim 1 wherein the ligand group is selected from the group consisting of a phenyl group and a η^5 -cyclopentadienyl group.
4. The device of claim 1 wherein the ligand is substituted with a group that comprises a conjugated system.
5. The device of claim 1 wherein the ligand is substituted with an aromatic group.
6. The device of claim 1 wherein the ligand is substituted with a fluorene group.
7. The device of claim 1 wherein the metal is W.
8. The device of claim 1 wherein the metal is Re.
9. The device of claim 1 wherein the light emitted from the light-emitting layer has maximum intensity at a wavelength between 600 and 700 nm.

10. The device of claim 1 wherein the light emitted from the light-emitting layer has maximum intensity at a wavelength between 500 and 600 nm.

11. The device of claim 1 wherein the light emitted from the light-emitting layer has maximum intensity at a wavelength between 400 and 500 nm.

12. The device of claim 1 wherein the light-emitting layer contains a light emitting compound of Formula (1),



wherein:

M represents Mo, W, Re, Ru, or Os.

Z represents the atoms necessary to form a ligand group that is neutral or negatively charged and Z is coordinated to M through π electron density with a hapticity greater than 2;

L represents independently selected ligand groups, provided that L is chosen so as to create a neutral complex with 18 electrons in the valence shell of M; and

n is 1-4, as necessary to fulfill the requirements of a neutral complex with 18 electrons in the valence shell of M.

13. The device of claim 12 wherein M represents W, Re or Os.

14. The device of claim 12 wherein M represents W.

15. The device of claim 12 wherein M is W, L is carbon monoxide and n is 3.

16. The device of claim 12 wherein M is W, L is carbon monoxide, n is 3, and Z is a 9,9-diphenylfluorene group.

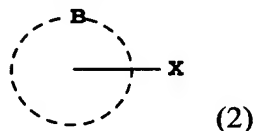
17. The device of claim 12 wherein Z represents the atoms necessary to complete a 5- or 6-membered aromatic ring group.

18. The device of claim 12 wherein Z represents the atoms necessary to complete a phenyl group or a η^5 -cyclopentadienyl group.

19. The device of claim 12 wherein M is Re, L is carbon monoxide, n is 3, and Z is a η^5 -cyclopentadienyl group.

20. The device of claim 12 wherein Z comprises a fluorene group.

21. The device of claim 12 wherein Z is represented by Formula (2),



wherein:

B represents the atoms necessary to complete a 5- or 6-membered aromatic ring group that is complexed to M through π electron density on B; and

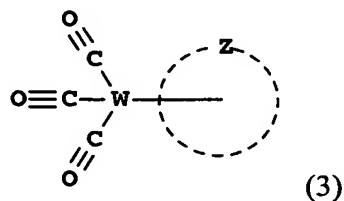
X represents a substituent group that comprises a conjugated system.

22. The device of claim 21 wherein X is conjugated with B.

23. The device of claim 21 wherein X is not conjugated with B.

24. The device of claim 1 wherein the light-emitting material is a phosphorescent material compound disposed in a host material.

25. The device of claim 24 wherein the phosphorescent material compound is present in an amount of up to 15 wt% based of the host.
26. The device of claim 1 wherein the light-emitting material is part of a polymer.
27. The device of claim 1 including a means for emitting white light.
28. The device of claim 1 a filtering means.
29. The device of claim 1 including a fluorescent emitting material.
30. A display comprising the electroluminescent device of claim 1.
31. An area lighting device comprising the electroluminescent device of claim 1.
32. A process for emitting light comprising applying a potential across the device of claim 1.
33. A composition of matter comprising a tungsten tricarbonyl compound given by Formula (3),



wherein:

Z is chosen from the group consisting of 9,9-diphenylfluorene, 9-phenyl-9-alkylfluorene, and *o*-terphenyl groups.